

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Thomas P. Glenn, Steven Webster, Markus K. Liebhard
Assignee: Amkor Technology, Inc.
Title: CHIP SIZE IMAGE SENSOR WIREBOND PACKAGE FABRICATION METHOD
Serial No.: 09/712,314 Filed: November 13, 2000
Examiner: Alonzo Chambliss Group Art Unit: 2827
Docket No.: G0026M

Monterey, CA
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE TITLE

Change the title to --CHIP SIZE IMAGE SENSOR WIREBOND PACKAGE FABRICATION METHOD--.

IN THE ABSTRACT

Change the paragraph extending from Page 38, line 7 to line 24 as follows:

To form an image sensor package, a window is mounted above an active area on an upper surface of an image sensor. A noncritical region of the upper surface of the image sensor is between the active area and bond pads of the image sensor. A lower surface of a step up ring is mounted above the noncritical region of the upper surface of the image sensor. An upper surface of the step up ring includes a plurality of electrically conductive traces. Bond wires are formed between the bond pads of the image sensor and the electrically conductive traces on the upper surface of the step up ring. The step up ring is mounted so that the window is located in or adjacent a central aperture of the step up ring. [The central aperture of the step up ring is filled with an encapsulant to

form an inner package body. An outer package body is formed by enclosing the bond pads and bond wires in an encapsulant.]

IN THE DESCRIPTION

Change the paragraph extending from Page 31, line 34 to Page 32, line 10 as follows:

This application is related to Glenn et al., co-filed and commonly assigned U.S. Patent Application Serial No. 09/711,993 [[ATTORNEY DOCKET NUMBER G0026]], entitled "CHIP SIZE IMAGE SENSOR WIREBOND PACKAGE"; Glenn et al., co-filed and commonly assigned U.S. Patent Application Serial No. 09/712,313 [[ATTORNEY DOCKET NUMBER G0046]], entitled "CHIP SIZE IMAGE SENSOR BUMPED PACKAGE"; and Glenn et al., co-filed and commonly assigned U.S. Patent Application Serial No. 09/711,994 [[ATTORNEY DOCKET NUMBER G0046M]], entitled "CHIP SIZE IMAGE SENSOR BUMPED PACKAGE FABRICATION METHOD", which are all herein incorporated by reference in their entireties.

IN THE CLAIMS

Claims 1 and 17 have been cancelled without prejudice.

Claims 2-6, 8, 10-13, 15, 18-20, 23, 24 have been amended as follows:

2. (AMENDED) The method of Claim [1] 13 wherein said mounting a step up ring comprises directly mounting a first surface of said step up ring to said noncritical region.

3. (AMENDED) The method of Claim [1] 13 wherein said step up ring is mounted around said window.

4. (AMENDED) The method of Claim 3 wherein [said step up ring comprises a central aperture,] said window [being] is located in or adjacent said central aperture.

5. (AMENDED) The method of Claim [1] 13 wherein said sensor device is one of a plurality of sensor devices integrally connected together in a wafer.

6. (AMENDED) A method comprising:
mounting a window above an active area on a first surface
of a sensor device, said sensor device comprising a bond pad on
said first surface, wherein said sensor device is one of a
plurality of sensor devices integrally connected together in a
wafer;

mounting a step up ring above a noncritical region of said
first surface between said bond pad and said active area, [The
method of Claim 5] wherein said step up ring is one of
plurality of step up rings integrally connected together in a
sheet, said method further comprising mounting a first surface
of said sheet to a first surface of said wafer; and

electrically connecting a trace on said step up ring to
said bond pad.

8. (AMENDED) The method of Claim [1] 13 wherein said mounting a step up ring comprises mounting a first surface of said step up ring to a window support layer above said noncritical region.

10. (AMENDED) The method of Claim [1] 13 wherein said window is mounted above said active area by a window support.

11. (AMENDED) The method of Claim [1] 13 wherein said electrically connecting a trace on said step up ring to said bond pad comprises wire bonding said trace to said bond pad with a bond wire.

12. (AMENDED) The method of Claim 11 wherein said
package body is a first package body, said method further
comprising forming a second package body to enclose said bond
wire.

13. (AMENDED) A method comprising:
mounting a window above an active area on a first surface
of a sensor device, said sensor device comprising a bond pad on
said first surface;
mounting a step up ring above a noncritical region of said
first surface between said bond pad and said active area, [The
method of Claim 1] wherein said step up ring comprises a
central aperture[, said method further comprising];
electrically connecting a trace on said step up ring to
said bond pad; and
filling said central aperture with an encapsulant to form
a package body.

15. (AMENDED) The method of Claim [1] 13 wherein said
sensor device is an image sensor.

18. (AMENDED) The method of Claim [17] 20 wherein said
directly attaching comprises directly attaching said first
surface of said step up ring to said first surface of said
sensor device with adhesive.

19. (AMENDED) The method of Claim [17] 24 wherein said
sensor device comprises a bond pad on said first surface of
said sensor device, a noncritical region of said first surface
of said sensor device being between said active area and said
bond pad, said directly attaching comprises directly attaching
said first surface of said step up ring to said noncritical
region.

20. (AMENDED) A method comprising:
mounting a window above an active area on a first surface
of a sensor device;
directly attaching a first surface of a step up ring to
said first surface of said sensor device, said step up ring

being mounted around said window; and [The method of Claim 19 further comprising]

electrically connecting said bond pad to an electrically conductive trace on a second surface of said step up ring, wherein said sensor device comprises a bond pad on said first surface of said sensor device, a noncritical region of said first surface of said sensor device being between said active area and said bond pad, said directly attaching comprises directly attaching said first surface of said step up ring to said noncritical region.

23. (AMENDED) The method of Claim [17] 20 wherein said sensor device is one of a plurality of sensor devices integrally connected together in a wafer.

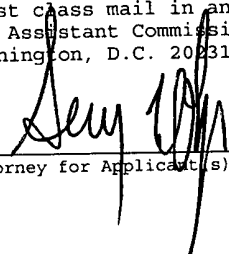
24. (AMENDED) A method comprising:
mounting a window above an active area on a first surface of a sensor device, wherein said sensor device is one of a plurality of sensor devices integrally connected together in a wafer; and

directly attaching a first surface of a step up ring to said first surface of said sensor device, said step up ring being mounted around said window, [The method of Claim 23] wherein said step up ring is one of plurality of step up rings integrally connected together in a sheet; and [, said method further comprising]

mounting a first surface of said sheet to a first surface of said wafer.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20531, on January 8, 2003.



Attorney for Applicant(s)

January 8, 2003

Date of Signature